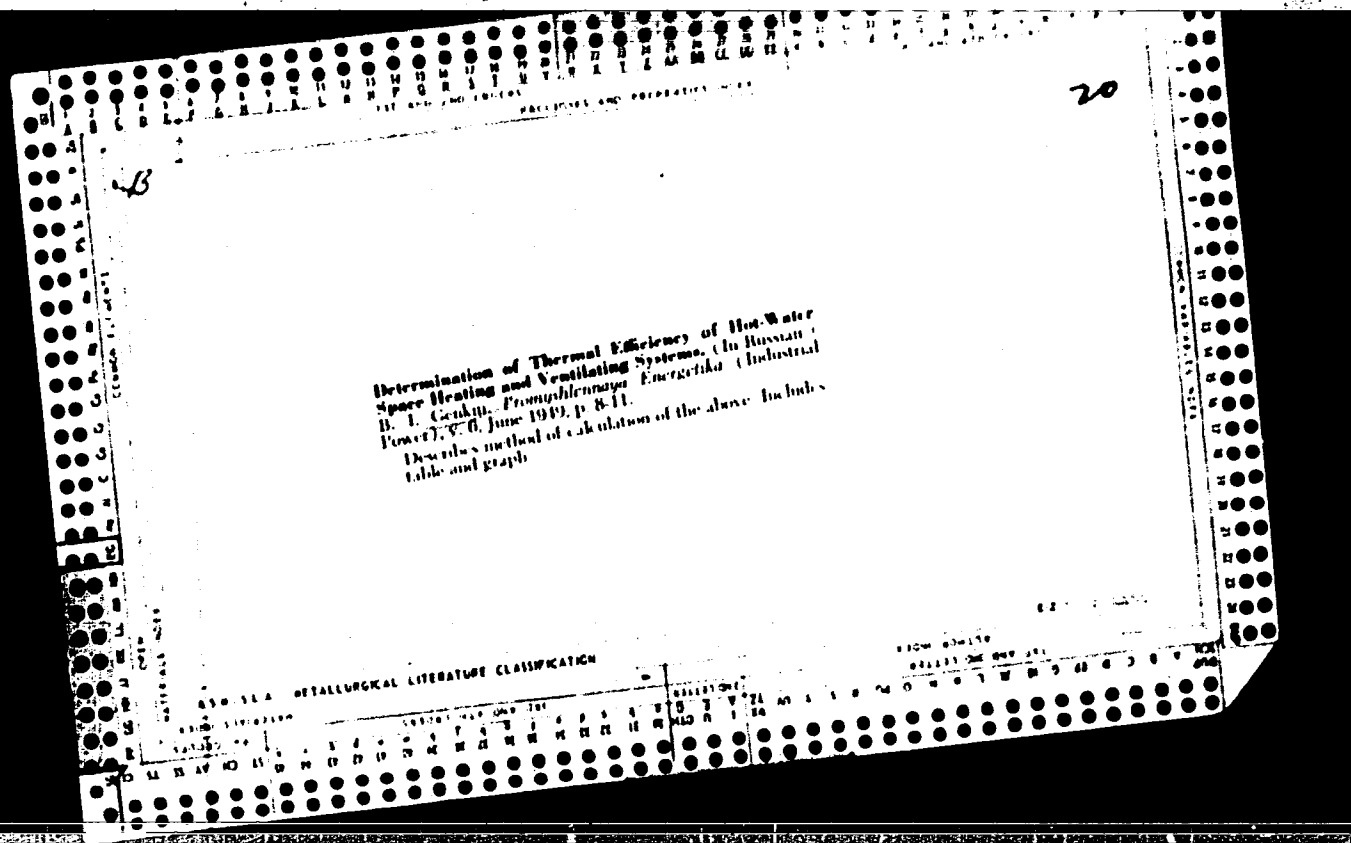


GENKIN, B. I.

"Methods of Utilizing Exhaust Steam in Industrial Enterprises", Gosenergoizdat, Moscow and Leningrad, 1949, 40 pp.



1ST AND 2ND COLUMNS		PROCESSES AND PROPERTIES INDEX	
F		P	
<p>4381. TEMPERATURE REGULATION INDISTRICT HEATING SYSTEMS. Genain, BI (Promyshlennaya Energetika (Industr. Pwr), 1949, (11), 5-8). When domestic and industrial buildings are connected to the same system, temperatures in domestic buildings tend to be too low when outside temperatures are high and vice versa, while the opposite is true for industrial buildings. The latter generally have a system of hot air circulation. Local adjustments to the flow of hot water are undesirable unless there is automatic adjustment at every domestic building, and equipment for this is not available. The author's solution consists in regulating water temperature at the central station to suit domestic heating requirements, fixing at each domestic building the proportions in which returning is mixed with incoming water and regulating temperatures in industrial buildings by automatic control of hot air circulation.</p>			
<p>ASIS-354 METALLURGICAL LITERATURE CLASSIFICATION</p>			
<p>10000 00</p>		<p>10000 00</p>	
<p>10000 00</p>		<p>10000 00</p>	

GENKIN, B. I.

PA 1617L3

USSR/Electricity - Power, Steam  
Heating, District

Jun 50

"Utilization of Exhaust Steam From Industrial Enterprises in District Heating and Power Systems According to a Parallel System," B. I. Genkin, Engr, 4 pp

"Prom Energet" No 6

Special pump sucks water from return main of district heating system and delivers it to boiler, where it is heated by exhaust steam, and thence to the supply main. Presents mathematical analysis of system and concludes it has many merits. It was used in 1949-50 at plant of Min of Transp Mach Bldg.

161743



SHCHIN, V. I.

Heating and Ventilation

Causes of the unsatisfactory working of the heating and ventilating system of industrial enterprises. *Tron. energ.* 2 no. 1, 1952, p. 13-15.

*TRANS - U 2575, 11 Nov 52*

Monthly List of Russian Accessions, Library of Congress, April 1952. UNCLASSIFIED.

GENKIN, B. I.

Calculating throttle valves for heating and ventilating installations.  
Za ekon top. 9, No 5, 1952.

GENKIN, B.I.

Fuel Abstracts  
Vol. 14 No. 4  
October 1953  
Domestic Heating,  
Cooking, Lighting, Etc.

3776. REGIME OF TWO PIPE HOT WATER HEATING SYSTEM WITH ELEVATOR  
CONNECTION (TO DISTRICT HEATING NETWORK). Genkin, B.I. ✓ (Prom. Energ.  
(Industr. Pwr, Moscow), 1953, 20-25). Calculations are made for  
problems arising when consumers' systems are connected to the district  
heating network by an "elevator", which is an injector device in which hot  
water from the network is mixed with a proportion of returned water from  
the consumer's system. (L).



JACKIN, P. I., Eng.

Heating Plants

Determining the heat productivity of network heaters. *Stek. sta.* 23, No. 2, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Incl.

CHENKIN, B.I., inzhener.

Regulating the heat in hot water district heating systems. Elek.  
sta. 25 no.8:15-20 Ag '54. (MLRA 7:9)  
(Hot-water heating)

AID P - 3558

Subject : USSR/Electricity

Card 1/2 Pub. 29 - 22/27

Authors : Genkin, B. I. and A. V. Ovsyannikov, Engs.

Title : ~~Adjusting water-jet connections of district heating systems to thermal networks~~  
Adjusting water-jet connections of district heating systems to thermal networks

Periodical : Energetik, 11, 29-33, N 1955

Abstract : The authors describe a water-jet connection system in centralized city heating networks. In this kind of water-jet connection the hot heating water is mixed with the returning cooler water. The advantage of this method of connection as compared with direct connection consists, according to the authors, in the possibility of operation of district heating systems together with local networks on different temperatures. Three tables, 6 drawings.

· Energetik, 11, 29-33, N 1955

AID P - 3558

Card 2/2      Pub. 29 - 22/27

Institution : None

Submitted : No date

GENKIN, B.I.

Some causes of unsatisfactory performance of ventilation system  
air heaters. Vod. 1 san. tekhn. no.7:24-27 J1 '56. (MLRA 9:10)

(Radiators)

GENKIN, B.I., inzhener.

Change-over of existing industrial hot-water heating systems to operation at higher temperatures. Prom.energ. 11 no.8:5-8 Ag '56. (MLRA 9:11)

1. Kontora po organizatsii i ratsionalizatsii rayonnykh elektrostantsiy i seti.  
(Hot-water heating)

8(6)

SOV/112-59-3-4540

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 3,  
pp 36-37 (USSR)

AUTHOR: Genkin, B. I.

TITLE: Use of Industrial Dead Steam for Hot-Water Central-Heating Systems  
(Ispol'zovaniye otrabotavshego para promyshlennyykh predpriyatiy v vodyanykh  
teplofikatsionnykh sistemakh)

PERIODICAL: Tr. Nauchno-tekhn. soveshchaniya po ispol'zovaniyu vtorichnykh  
energ. resursov. M.-L., Gosenergoizdat, 1957, pp 140-157

ABSTRACT: The use of industrial exhaust steam reduces fuel expenses and cost  
of production. However, it has only been adopted slowly because of the  
seasonal nature of the heating load, the distances between the dead-steam plant  
and its consumers, and the complexity of steam and condensate cleaning from  
oil. The following uses of exhaust steam are possible: (1) for dead-steam  
turbines; (2) for refrigeration; (3) for pressure step-up in compressors;

Card 1/3

8(6)

SOV/112-59-3-4540

**Use of Industrial Dead Steam for Hot-Water Central-Heating Systems**

(4) for feed-water heating at an electric station during the summer period; (5) for water heating in hot-water supply systems; (6) for central-heating systems. The possible schemes of using exhaust steam for district heat supply are: (1) with the heating of network return water; (2) for heat supply to an individual district by means of surface or mixing water heaters; (3) with added-water heating. Because of its simplicity, the most widely used is the scheme with heating of return water. However, it reduces the capacity of extractions from turbines and, consequently, the electric-station economy. An example of dead-steam utilization in an autonomous heat-supply system is considered, and its shortcomings are noted. A new scheme of "heated admixture" is described in which water from the return main is passed through heaters fed by the exhaust steam and then is pumped to the outgoing line. Use of this scheme affects both hydraulic and thermal conditions of the heating system. Design methods for this scheme and a numerical example are set

Card 2/3



8(6)

SOV/112-59-3-4540

Use of Industrial Dead Steam for Hot-Water Central-Heating Systems

forth. Choice of a particular scheme of exhaust-steam utilization in a heat-supply system depends on local conditions.

M. L. Z.

Card 3/3

GENKIN, B.I., inzh.

Plotting temperature graphs of the performance of heat producing systems during the transition to new calculated outside temperatures. Elek. sta. 29 no.10:31-34 0 '58. (MIRA 11:11)  
(Heat engineering)

GENKIN, B.I.

Concerning the use of an expansion tank in water heat systems.  
Energetik 10 no.3:34 № 62. (MIRA 15:2)  
(Water heat)

GENKIN, B.I.

Laying of condensate conduits. Energetik 10 no.9:36 S '62.  
(MIRA 17:1)

GENKIN, B.L., inzh.

Municipal hot water supply system with a building's piping  
directly connected to supply and return pipes of the district  
heating system. Nov. tekhn. zhil.-kom. khoz.: Elek. i tepl. gor.  
no.5:86-103 '64. (MIRA 18:2)

1. Gosudarstvennyy trust po organizatsii i racionalizatsii rayonnykh  
elektrostantsiy i setey.

GENKIN, B.M., kand.med.nauk

Hygienic evaluation of some methods of removing dust from work clothes. Sbor. rab. po silik. no.2:233-239 '60. (MIRA 14:3)

1. Sverdlovskiy gosudarstvennyy meditsinskiy institut.  
(DUST REMOVAL) (WORK CLOTHES)

DUBININ, F.D., inzh.; GENKIN, B.M., inzh.

Organizing of assembly-line operations in the manufacture of  
stator windings. Vest. elektroprom 34 no.6:49-52 Je '63.  
(MIRA 16:7)

(Electric machinery--Windings)  
(Assembly-line methods)  
(Electric machinery industry)

GENKIN, B.M.; GARBER, K.D.

Use of information theory in the development of systems  
for the control of industrial processes. Trudy LIEI  
no.55:85-88 '65. (MIRA 18:11)



GENKIN, B.S.; GUMILEVSKIY, M.S.; DUBINKIN, M.P.; KACHER, Kh.A.; MEDINSKIY, L.B.;  
FISH, A.Ya.; KHMIMOV, G.I.; BOROKH, V.I., redaktor.

[Technical norms and wages in the electrical industry] Tekhnicheskoe  
normirovanie i sarabotnaia plata v elektropromyshlennosti. Moskva, Gos.  
energ. izd-vo, 1953. 247 p. (MLBA 7:1)  
(Electric industries) (Industrial management)

GENKIN, B.S.; POLITIKOV, M.I.; UDMADTURIDZE, V.A.

Practice of using radiogeodetic measurements in large-scale  
airborne geophysical surveys. Razved. i prom. geofiz. no.47:  
72-78 '63. (MIRA 16:8)  
(Radio in surveying) (Aeronautics in surveying)

GEN'KIN, D., starshiy prepodavatel'

Research being carried out by the Leningrad Institute of Water  
Transportation. Rech. transp. 20 no.12:17-18 D '61. (MIRA 14:12)

1. Leningradskiy institut vodnogo transporta.  
(Inland water transportation)  
(Merchant marine--Cost of operation)

GENKIN. D., doktor yuridicheskikh nauk, prof.

Thirtieth anniversary of the Foreign Trade Arbitration  
Commission. Vnesh.орг. 42 no.8:13-15 '62. (MIRA 15:9)

1. Predsedatel' Vneshnetorgovoy arbitrazhnoy komissii.  
(Arbitration and award)

GENKIN, D. prof., doktor yuridicheskikh nauk

Recovery of "abstract damages" in foreign trade transactions.  
Vnesh.torg. 43 no.4:47-48 '63. (MIRA 16:4)  
(Penalties, Contractual)

GENEIN, DMITRIY MIKHAYLOVICH

Pravo sobstvennosti v SSSR. Moskva, Gosyurizdat, 1961.

222p. (Kurs Sovetskogo Grazhdanskogo Prava)

At head of half-title page Vsesoyuznyy Institut  
Yuridicheskikh Nauk.

Includes bibliographical references.

ANTIMONOV, B.S., prof.; VEDENIN, N.N., kand. yurid. nauk; GENKIN,  
D.M., prof.; GRAVE, K.A., prof.; YEPANESHNIKOV, N.V.,  
dots.; ZHUKOVA, L.F., dots.; KUNIK, Ya.A., dots.;  
L'VOVICH, Yu.Ya.; MARGOLIN, M.Z.; MOROVSKAYA, T.A., dots.;  
POLENINA, S.V., kand. yurid. nauk; SADIKOV, I.N.; FIALKOV,  
M.A., kand. yurid. nauk; YAZEV, V.A., kand. yurid. nauk;  
YAKHNINA, N.A., kand. yurid. nauk; KIRAKOZOVA, N.Sh., red.;  
EL'KINA, E.M., tekhn. red.

[Government trade regulation] Regulirovanie gosudarstvennoi  
torgovli. Moskva, Gostorgizdat, 1963. 339 p. (MIRA 16:7)  
(Commercial law)

GEN'KIN, David Yefimovich; KALININ, B.A., red.; SABUROVA, T.N., red.;  
VOLCHOK, K.M., tekhn. red.

[Leningrad Harbor longshoremen are striving for communist  
labor]Rechniki Leningradskogo porta v bor'be za kommunistiche-  
skii trud. Leningrad, Izd-vo "Rechnoi transport," 1961. 46 p.  
(Leningrad--Harbor) (Leningrad--Longshoremen) (MIRA 15:9)



GENKIN, E. I.

DECEASED

SEE ILC

CHEMISTRY

TOROPOV, N.A.; UDALOV, Yu.P.; GENKIN, G.A.

Role of the impurity cation in the process of selective etching of KBr and NaCl crystals. Dokl. AN SSSR 158 no.2:335-337 S '64.

(MIRA 17:10)

1. Leningradskiy tekhnologicheskii institut im. Lensovetu. 2. Chlen-korrespondent AN SSSR (for Toropov).

GENKIN, G.L., inzhener.

Moscow exhibition of new building technology, 1956. Stroil.  
pred.neft.prom. 1 no.7:24-26 S '56. (MLRA 9:10)

(Moscow--Construction industry--Exhibitions)

GENKIN, G.L., inzh.

Moscow exhibition of building materials and equipment developed  
in 1957. Stroi, pred. neft. prom. 2 no.9:26-28 S '57.

(MIRA 12:5)

(Moscow--Building machinery--Exhibitions)

GENKIN, G.L.; SMOLINA, I.A.

New displays at the permanent All-Union Exhibition of Construction  
and Architecture. Stroi. pred. neft. prom. 3 no.6:27-30 Je '58.  
(MIRA 11:7)

(Oil fields--Equipment and supply)

GENKIN, G.L., inzh.

At the All-Union Industrial Exhibition. Stroil.truboprov. 3  
no.9:28-29 S '58. (MIRA 11:12)  
(Moscow--Exhibitions)

GENKIN, G.L., insh.

~~www.ozon.ru~~

Moscow exhibition of new building techniques, 1958. Stroitel'stvo.

3 no.12:28-29 D '58.

(MIRA 12:1)

(Moscow--Building--Exhibitions)

GENKIN, G. L. inzh.

Exhibition "Introducing Welding Equipment in the National Economy."  
Stroi. truboprov. 5 no.9:28-30 S '60. (MIRA 13:9)  
(Electric welding--Equipment and supplies)



GENKIN, G.L., inzh.

Petroleum and gas at the Exhibition of Achievements of the Soviet  
National Economy. Stroil. trubooproov. 5 no.5:29 My '60.

(MIRA 13:9)

(Moscow--Pipelines--Exhibitions)

GEMKIN, G.L., insh.

"Means for protecting metals and building materials against corrosion  
in the national economy exhibition. Stroi. truboprov. 5 no.10: 27  
O '60. (MIRA 13:10)

(Corrosion and anticorrosives)

S/095/60/000/009/003/005  
A053/A026

AUTHOR: Genkin, G.L., Engineer

TITLE: Exhibition "Promotion of Welding Practice in the National Economy"

PERIODICAL: Stroitel'stvo truboprovodov, 1960, No. 9, pp. 28 - 30

TEXT: The Pavilion "Machine Building" devoted to welding serves the purpose of promotion of welding practice in the national economy. The participants are organizations, institutes and leading manufacturing plants dealing with welding problems. There are over a thousand of specimens of equipment exposed on the numerous stands, each of which is dealing with a special branch. The article mentions the following apparatus and machines displayed: magneto-walking apparatus A-501 (A-501) developed by the Institut elektrosvarki im. Ye.O. Patona (Electric Welding Institute imeni Ye.O. Paton). The apparatus does electric slag welding and is intended for butt and angle welding of metal up to 100 mm thick; it is equipped with a magnetic walking mechanism, which enables the apparatus to hold on to vertical panels and to move (walk) in the direction of welding; one or two 2-mm wires are fed through a flexible tube. Apparatus A -535 (A-535) is intended for electric slag welding for straight and circular seams and consists of a feeding mechanism for 3 electrode wires, a carriage and a mechanism for

Card 1/4

S/095/60/000/009/003/005  
A052/A026

Exhibition "Promotion of Welding Practice in the National Economy"


horizontal vibration of electrodes. During operation the apparatus moves on rails parallel to the welding seam. Automatic welding machine **ADK-500** (ADK-500) is intended for arc welding of steel cylinders; it consists of a revolving table, welding head and a control mechanism; the table can be inclined at an angle of 90° and is driven by a 3-phase asynchronous motor operation over a reducer and gear-box. Tractor **TC-33** (TS-33) for automatic welding of aluminum by means of half-open arc under a layer of flux has been developed by the Electric Welding Institute imeni Ye.O. Paton. Tractor TS-33 is meant for welding butt and angle seams from metal 30 - 40 mm thick as well as for circular seams on containers having a diameter of 1,000 mm and more. Kiyev sovmarkhoz exhibits a semi-automatic welding machine for welding 0.6 - 1.0 mm diameter wire under a protective gas envelope. The machine consists of a panel, gas apparatus, power source and feeding mechanism with holder and flexible tube, through which the wires, gas and welding current pass. The peculiarity of the electric system of this machine is that contactor, electric motor and gas heater are fed all directly from the welding chain. The Leningrad "Elektrik" Plant shows a new welding unit **PCF-500** (PSG-500) for feeding direct current to automatic and semi-automatic machines for welding by means of a fusing electrode under a protective gas envelope. The 500 amp

Card 2/4

S/095/60/000/009/003/005  
A053/A026

Exhibition "Promotion of Welding Practice in the National Economy"

generator and asynchronous 3-phase motor from a single body. The automatic welding outfit ATB (ATV) operates with a non-fusing tungsten electrode for welding stainless steel pipes of 25 - 250 mm in diameter. Special interest attracts the automatic welding machine ACF-2 (ASG-2) for welding circular seams equipped with welding wire feed. The movement of the welding head and constant distance between it and the object are automatically controlled. The work of the machine is supervised by TV. The highest perfection in semi-automatic gas-electric welding is attained by the unit A-547 (A-547) designed by the Institute imeni Ye.O. Paton and by unit PDPG-300 (PDPG-300) issued by the "Elektrik" Plant. Welding manipulator YCM-50 (USM-50) serves to turn objects automatically with the speed of the welding process of circular seams. The lifting capacity of USM-50 is 500 kg. A larger type manipulator CM-5,000Г (SM-5,000G) designed by VPII has a capacity of 5,000 kg. Manipulators MAC-1 (MAS-1), MAC-2 (MAS-2) and MAC-3 (MAS-3) are intended for automatic circular welding; the revolving table corresponding to 10 to 60 m/h of welding is electrically driven and adapted to distance control. Among the novelties in welding the exhibition displays apparatus welding by means of electronic rays, by plastic torch, by the diffusion method; it shows apparatus for arc welding under steam protection, for double contact welding, for



Card 3/4

S/095/60/000/009/003/005  
A053/A026

Exhibition "Promotion of Welding Practice in the National Economy"

welding of plastics, for arc welding in a controllable atmosphere. NIAT exhibits the installation **BYAC-1** (VUAS-1) for automatic welding of chemically active metals in a controllable atmosphere by non-fusing electrodes; the installation comprises a hermetically closing chamber and a vacuum post; it processes pipes of 200 mm in diameter at a rate of 5-50 m/h. Electric cutting and planing is demonstrated by a device which by means of a carbon graphite electrode produces an arc which cuts through metal, while the molten metal is blown out by air. There are 7 photographs.

Card 4/4

GENKIN, G.L.

Pavilion "Gas industry" at the Exhibition of the Achievements of  
the National Economy of the U.S.S.R. Stroi. trub. 9 no.7:34-35  
Jl '64. (MIRA 17:11)

GENKIN, G.L.

Exhibition of National Economy Achievements "Specialized  
transport for the transportation of construction elements  
and products." Stroi. truboprov. 10 no. 11:21-23 N '65.  
(MIRA 18:12)



L 25588-66 ENT(d)/ENP(h)/ENP(1)

ACC NR: AP6016107

SOURCE CODE: UR/0095/65/000/011/0021/0023

AUTHOR: Genkin, G. L.

ORG: none

TITLE: Topical exhibition of specialized transportation for hauling structural materials and products given at the exposition of achievements of the national economy

SOURCE: Stroitel'stvo truboprovodov, no. 11, 1965, 21-23

TOPIC TAGS: motor vehicle, construction, transportation equipment

ABSTRACT: The author gives a brief description and technical data on ten different types of trucks and trailers specifically designed for use in the construction industry. These models were shown in an exhibition for hauling equipment in the building industry given at the Exposition of Achievements of the National Economy. Panel trucks, farm trucks and various types of specialized semitrailers were exhibited in an open pavillion "Transport SSSR". This is the first time this type of an exhibition has been given at the Exposition. The purpose of this demonstration is to familiarize those in the construction industry with the latest Soviet Equipment in their field so that they may make a more rational choice for their specific needs. Orig. art. has: 5 figures. [JPRS]

SUB CODE: 13 / SUBM DATE: none

Card 1/1 dda

L 27091-66 EWP(e)/ENT(m)/EWP(j) NW/RM/WH

ACC NR: AP6017403

SOURCE CODE: UR/0095/65/000/012/0033/0034

AUTHOR: Genkin, G. L.

ORG: none

TITLE: Plastic pipes

SOURCE: Stroitel'stvo truboprovodov, no. 12, 1965, 33-34

TOPIC TAGS: polyvinyl chloride, pipe, polyethylene plastic, pipeline, heat-resistant glass, nonferrous metal, alloy steel, ceramic material

ABSTRACT: At the International Exhibition "Chemistry in Industry, Construction and Agriculture," the Soviet Union was not only the organizer but the largest producer of chemical machines, equipment and products. More than 700 enterprises, institutes and scientific research foundations demonstrated the achievements of Soviet chemical science and industry. Plastic pipes were among the most interesting exhibits. Delivery pipes, made from rigid polyvinyl chloride and dense polyethylene, were shown which are designed as outside and inside delivery pipelines for water, air, acids and caustic solutions. Vertically drawn, heat resistant glass pipes were also shown. These are put out in diameters of 50, 75, 100, 150 and 200 mm and lengths of up to 3000 mm. They are made in sets with tees, drains, adapters and other fittings. These pipes are used mainly in the chemical industry for replacing pipes made from nonferrous metals and

Card 1/3

UDC: 621.643.29

L 27091-66

ACC NR: AP6017403

alloy steels. These pipes are sanitary and transparent and cannot be replaced in several branches of industry. Steel pipes lined with dense polyethylene were shown for high pressure transportation of fluids from  $-30$  to  $+70^{\circ}\text{C}$ . These are produced in nominal sizes of  $0.02$  to  $0.15$  m in diameter. The unit consists of a low-carbon steel pipe with a dense extruded polyethylene liner.

Also shown at the exhibition were steel pipes coated with acid-resistant enamel which may be used to replace stainless steel and nonferrous pipes. These units are designed for transporting corrosive media with a working pressure of  $6$  and  $10$  kg/cm<sup>2</sup> and a temperature of up to  $200^{\circ}\text{C}$ . Heat treated pyroceramic pipes and fittings made of sitall were also shown. These units are highly heat resistant and mechanically strong. They may be used in a wide temperature range under variable thermal loads. These pipes are used in the chemical, coke and oil refining industries for replacing pipes made from nonferrous metals and alloy steels. The sitall pipes have the following physicochemical and mechanical properties: linear coefficient of thermal expansion  $\alpha$ ,  $10^{-1}/\text{deg}$  ( $20-300^{\circ}\text{C}$ )-- $57$ ; softening temperature, degrees C-- $1050$ ; operating temperature range, degrees C--from  $-30$  to  $+300$ ; internal hydraulic bursting pressure, kg/cm<sup>2</sup>-- $50-60$ ; working pressure, kg/cm<sup>2</sup>-- $4-8$ ; specific weight, g/cm<sup>3</sup>-- $2.55$ . Pyroceramics are also used for making special pipes and other equipment for processing chlorides of rare elements at temperatures up to  $900^{\circ}\text{C}$ . These pipes and fittings are resistant to chlorides and chlorine and may be used for preparing highly pure products of rare elements. Pipes of this type are highly resistant.

Card 2/3

L 27091-66

ACC NR: AP6017403

to heat and several times stronger than quartz-glass pipes. The pipes are made in diameters of 60.74 and 110 mm in 1500 mm lengths. Orig. art. has: 4 figures.

[JPRS]

SUB CODE: 13.11 / SUBM DATE: none

Card 3/3 FV

51-4-19/25

AUTHOR: Genkin, G.M.

TITLE: Energy of a molecule of the symmetrical top type in an external electric field. (Energiya molekuly tipa simmetrichnogo volchka vo vneshnem elektricheskoy pole).

PERIODICAL: "Optika i Spektroskopiya" (Optics and Spectroscopy) 1957, Vol.2, No.4 pp.530-534 (U.S.S.R.)

ABSTRACT: This theoretical paper deals with the calculation of energy of a non-linear molecule of the symmetrical top (s.t.) type. This s.t. molecule possesses a constant dipole moment  $\mu$ , which is assumed to lie along the axis of symmetry of the molecule, and is acted on by an external constant electric field  $\epsilon$ . Solution of a matrix Schrödinger equation gives the energy  $E$  as

$$E = J(J+1) + CK^2 - \mu\epsilon \frac{MK}{J(J+1)} - \frac{\mu^2 \epsilon^2 A_{JMK}^2}{MK} - E - \frac{\mu^2 \epsilon^2 A_{J+1,MK}^2}{(J+1)(J+2)} \dots$$

Card 1/3

51-4-19/25

Energy of a molecule of the symmetrical top type in an external electric field. (Cont.)

$$- \frac{\mu^2 \epsilon^2 A_{J-1, MK}^2}{J(J-1) + CK^2 - \mu \epsilon \frac{MK}{J(J-1)} - E - \frac{\mu^2 \epsilon^2 A_{J-2, MK}^2}{\dots \dots \dots}}$$

Here  $J = 0, 1, \dots$

$K = 0, \pm 1, \dots, \pm J;$

$M = 0, \pm 1, \dots, \pm J;$

$C = (I_A/I_C) - 1;$

$I_A, I_B, I_C$  are the principal moments of inertia of the molecule; and

$$A_{JMK} = \sqrt{\frac{[(J+1)^2 - M^2][(J+1)^2 - K^2]}{(J+1)^2(2J+1)(2J+3)}};$$

( $A_{J+1, MK}, A_{J-2, MK}$  etc. are analogous to  $A_{JMK}$ ). If one substitutes  $K=0$  into the above equation for  $E$ , the linear molecule case is obtained. The author shows that his

Card 2/3

51-4-19/25

Energy of a molecule of the symmetrical top type in an external electric field. (Cont.)

equation for  $E$  gives, for weak fields, results identical with those obtained from perturbation theory. No figures or tables; 5 references (3 of which are Slavic).

SUBMITTED: October 4, 1956.

AVAILABLE: Library of Congress

Card 3/3

GENKIN, G.M.

Free path of an exciton in a polar crystal. Fiz.tver.tela 3  
no.7:2097-2101 J1 '61. (MIRA 14:8)  
(Excitons) (Crystal lattices)



24 7/00

5/101/62/004/006/014/041  
5125/5102

AUTHOR: Genkin, G. M.

TITLE: Kinetic consideration of cyclotron resonance in semiconductors

PERIODICAL: Fizika tverdogo tela, v. 4, no. 8, 1962, 2116-2122

TEXT: A system of electrons in a field  $\vec{H}_0$  is considered interacting with an electromagnetic wave of frequency  $\omega$ . These electrons (or holes) are assumed to have an isotropic quadratic energy spectrum  $\epsilon(\vec{p})$  with the effective mass  $M$ . At helium temperatures where cyclotron resonance occurs, the electrons are mainly scattered by impurities. The interaction potential has the form of a  $\delta$ -function. Under these conditions a series of expressions for the shape of the cyclotron resonance line is given by the quantum kinetic equation

$$f_{\beta,\beta}(s+i\omega_{\beta,\beta}) = F_{\beta,\beta} + \sum_{\gamma,\gamma} W(\beta,\beta)(\gamma,\gamma) f_{\gamma,\gamma} \quad \text{with}$$

Card 1/4

Kinetic consideration of ...

S/151/02/004/006/014/041  
B125/B102

$$W_{(p_1, p_2)} = \frac{\pi}{h^2} \left\{ \sum_q NV_{ij}^2(q) J_{i_1}^* J_{i_2} [\delta(\omega_{p_1} - \omega) + \delta(\omega_{p_2} - \omega)] - \right. \\ \left. - \delta_{p_1} \sum_q \sum_j NV_{ij}^2(q) J_{i_1}^* J_{j_1} \delta(\omega_{p_1} - \omega) - \right. \\ \left. - \delta_{p_2} \sum_q \sum_j NV_{ij}^2(q) J_{i_2}^* J_{j_2} \delta(\omega_{p_2} - \omega) \right\}. \quad (2)$$

In the quantum limit  $\hbar\omega_0 \gg kT$  the definite expression

$$\text{Re } \sigma_{xx}(\omega) = \frac{e^2 n_{\text{ex}} \omega_0}{4\pi M v_0 kT} \int_{-\infty}^{\infty} f(z_0) dP_z \times \\ \times \left[ \frac{\iint dq_x dq_y \left[ I_{00} (I_{11}^* - I_{00}) \left( \frac{p_z^2}{2M} - \hbar\Delta\omega \right)^{-1/2} + I_{11}^* (I_{00} - I_{11}) \left( \frac{p_z^2}{2M} + \hbar\Delta\omega \right)^{-1/2} \right]}{(\omega - \omega_0)^2 + \frac{\pi^4 \hbar^4}{64 \pi^2 M^2 kT}} \right] \frac{\iint dq_x dq_y \left( \frac{I_{00} (I_{11}^* - I_{00})}{\sqrt{\frac{p_z^2}{2M} - \hbar\Delta\omega}} + \frac{I_{11}^* (I_{00} - I_{11})}{\sqrt{\frac{p_z^2}{2M} + \hbar\Delta\omega}} \right)^{-2}} \quad (7)$$

Card 2/4

Kinetic consideration of ...

S/181/62/004/008/014/C41  
B125/B102

$$+ \frac{\iint dq_x dq_y \left[ f_{20}^{*} f_{31} \left( \frac{p_x^2}{2M} + \hbar \Delta \omega \right)^{-1/2} - f_{02}^{*} f_{02} \left( \frac{p_x^2}{2M} - \hbar \Delta \omega \right)^{-1/2} \right]}{(\omega - \omega_0)^2 + \frac{\pi^4 \hbar^4}{6 \epsilon^2 M^2 k T} \left[ \iint dq_x dq_y \left( \frac{f_{20}^{*} f_{31}}{\sqrt{\frac{p_x^2}{2M} + \hbar \Delta \omega}} - \frac{f_{02}^{*} f_{02}}{\sqrt{\frac{p_x^2}{2M} - \hbar \Delta \omega}} \right)^2 \right]}$$

for the cyclotron resonance line shape follows from the above mentioned expressions. In these expressions  $f_{\beta' \beta}$  is the single-particle density matrix, linear with respect to the external electromagnetic field;  $\beta$  is the quantum number of the set of single electron states;  $\bar{W}(\beta' \beta)(\gamma' \gamma)$  is the horizontal irreducible part;  $F_{\beta' \beta}$  corresponds to the graphs containing no horizontal irreducible part;  $V_{e\alpha}(\mathbf{q})$  are the Fourier components of the parameter of the interaction between electrons and impurities,  $J_{\alpha\alpha'}(\mathbf{q})$  is the matrix element of the operator  $\exp(i\mathbf{q}\mathbf{r})$ ;  $N$  is the number of impurity atoms. Furthermore:  $s = -i\omega + \nu$  where  $\nu$  is an adiabatic parameter tending

Card 3/4

Kinetic consideration of ...

S/131/62/004/005/014/041  
B125/B102

to zero in the final formulas;  $n_{\Sigma}$  is the total number of electrons in the specimen and  $\sigma_{xx}(\omega)$  is the electric conductivity transverse to the constant magnetic field. There is 1 figure.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet im. N. I.  
Lobachevskogo (Gor'kiy State University imeni N. I.  
Lobachevskiy)

SUBMITTED: November 30, 1961 (initially)  
March 7, 1962 (after revision)

Card 4/4

GENKIN, G.M.

Correction to the article entitled "Exciton free path in a  
polar crystal" (FTT, 3, 2097, 1961). Fiz. tver. tela 4 no.5:  
1385-1386 My '62. (MIRA 15:5)  
(Excitons) (Crystals)

ALEKSANDROV, A.P.; GENKIN, G.M.; GUREVICH, G.L.; DUBININ, V.I.

Establishment of ferrite magnetization precession at high power levels. Fiz. tver. tela 5 no.10:2766-2770 0 63. (MIRA 16:11)

1. Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta.

GENKIN, G.M.; OTMAKHOV, Yu.A.; ROZENBLYUM, Ye.A.

Theory of spin waves in antiferromagnetics. Fiz. tver. tela  
5 no.10:2968-2977 0 '63. (MIRA 16:11)

1. Gor'kovskiy gosudarstvennyy universitet im. N.I. Lobachevskogo.

ACCESSION NR: APL019044

S/0181/64/006/003/0818/0826

AUTHORS: Genkin, G. M.; Golubova, N. G.; Tsukornik, V. K.

TITLE: The spin phonon width of lines of antiferromagnetic resonance

SOURCE: Fizika tverdogo tela, v. 6, no. 3, 1964, 818-826

TOPIC TAGS: spin phonon interaction, magnetic resonance, magnetization precession, exchange interaction, antiferromagnetism

ABSTRACT: The authors have examined the relaxation of the uniform precession of magnetization in a uniaxial antiferromagnetic as a consequence of interaction between spin waves and phonons (both acoustical and optical). They show that the relaxation processes of creating (or absorbing) an acoustical phonon by a spin wave, by virtue of the law of conservation of energy and momentum, may take place only at frequencies of

$$\omega_0 > \omega_{gr} = \frac{\sqrt{3}h_A v}{a}$$

where  $\omega_0$  is the frequency of antiferromagnetic resonance,  $h_A$  is the field of

Card 1/2



ACCESSION NR: AP4019844

anisotropy,  $v$  the velocity of sound, and  $a$  the lattice constant. The interaction is an exchange process. The width of the line has been computed for any temperature. At rather high frequencies of antiferromagnetic resonance,  $\omega_0 > \omega_0^{gr}$ , where normally  $\omega_0^{gr} \sim 2 \cdot 10^{12}$  sec<sup>-1</sup>deg, the spin-phonon line width at low temperatures proves to be much greater than spin-spin line width. At frequencies of  $\omega_0 < \omega_0^{gr}$ , the spin-phonon width is small compared to spin-spin width, except for regions of very low temperatures ( $T < 10^{-3}K$ ). Orig. art. has: 39 formulas.

ASSOCIATION: Radiofizicheskiy institut, Gorkiy (Radiophysical Institute)

SUBMITTED: 21Sep63

DATE ACQ: 31Mar64

EXCL: 00

SUB CODE: SS, EM

NO REF SOV: 003

OTHER: 008

Card 2/2

ACCESSION NR: AP4039641

S/0181/64/006/006/1608/1611

AUTHOR: Genkin, G. M.

TITLE: High frequency polaron conductivity

SOURCE: Fizika tverdogo tela. v. 6, no. 6, 1964, 1608-1611

TOPIC TAGS: polaron, semiconductor conductivity, semiconductor charge carrier, high frequency, frequency dependence, activation energy

ABSTRACT: The high-frequency polaron conductivity is considered for semiconductors in which the current carriers are polarons of small radius due to the strong electron-phonon interaction. For temperatures  $T > T_0$  jumps exceeding the barrier energy of small radius polarons from one lattice point to another are the primary contribution to the conductivity. The limiting temperature  $T_0$  is determined from  $kT_0 \approx \frac{\hbar\omega_{opt}}{2 \ln S_r}$ , where  $\omega_{opt}$  is the characteristic frequency of the optical phonons

and  $S_r \gg 1$  is a parameter characterizing the strength of the electron-phonon coupling. Typically  $S_r \sim 10$ ,  $T_0 \sim 65^\circ K$ . For temperatures  $kT > \frac{\hbar\omega_{opt}}{2}$  and frequencies  $\omega \leq \omega_{max}$  the polaron conductivity is given by

Card 1/2

ACCESSION NR: AP4039641

$\sigma_H^{(0)}(\omega) \approx \sigma_H^{(0)}(0) \frac{\sin \left[ \omega \sqrt{\frac{h}{2\omega_{opt} kT}} \right] \sqrt{2\omega_{opt} kT}}{\omega \sqrt{h}}$ . Here  $\gamma$  is the average value of the electron-phonon interaction coefficient,  $\omega_{max} = \frac{\pi}{2t_0}$ , the "jump time"  $t_0 \sim \frac{h}{\sqrt{E_a kT}}$  and the activation energy  $E_a \sim \frac{1}{2} h\omega_{opt}$ . The polaron conductivity for constant current is  $\sigma_H^{(0)}(0) \approx \frac{1}{2} ne^2 \beta \sum W_H(g) g^2$ , where  $n$  is the electron concentration,  $\beta = (kT)^{-1}$  and  $W_H(g)$  is the jump probability (T. Holstein. Ann. of Phys., 8, 343, 1959).  
Orig. art. has: 31 equations.

ASSOCIATION: Radiofiziches'kiy institut Gor'kovskogo gosudarstvennogo universiteta (Radiophysics Institute, Gorkiy State University)

SUBMITTED: 04Nov63

DATE ACQ: 19Jun64

ENCL: 00

SUB CODE: SS

NO REF SOV: 005

OTHER: 006

Cord 2/2

10766-55 EWT(1)/EPA(s)-2 Pt-10 IJP(c)/ESD(t)/ASD(a)-5/AFETR/SSD/ESD(gz)/AFWL/  
RAEM(a)/AS(mp)-2 GG

ACCESSION NR: AP4044929

S/0181/64/006/009/2618/2625

AUTHOR: Genkin, G. M.

TITLE: High frequency nonresonant absorption in an antiferromagnet B A

SOURCE: Fizika tverdogo tela, v. 6, no. 9, 1964, 2618-2625

TOPIC TAGS: resonance absorption, magnetic susceptibility, anti-ferromagnetism, anisotropy

ABSTRACT: The Hamiltonian of the interaction of an AC field with a magnetic substance contains terms representing nonresonant absorption. These terms are very small at resonance but far from resonance they may be large because of the different frequency dependence of the resonant and nonresonant absorption contributions: the resonance susceptibility is inversely proportional to the square of the frequency while the nonresonance susceptibility increases with the frequency at high frequencies. The present paper deals theoretically

Card 1/2

L 10766-65

ACCESSION NR: AP4044929

5  
with the imaginary part of the high-frequency nonresonance transverse susceptibility of uniaxial antiferromagnets when  $\omega/\omega_0 > 1$  at low temperatures  $\hbar\omega_0 > kT$ , where  $\omega_0$  is the antiferromagnetic resonance frequency in the absence of the external field. At sufficiently high frequencies  $\omega/\omega_0 > 3$  the imaginary part of the nonresonance susceptibility increases with the frequency until at very high frequencies, of the order of  $\omega/\omega_0 > 2 + \sqrt{1 + 0.3h_A^{-1}}$ , it begins to fall slowly with increase of frequency ( $h_A$  is the reduced anisotropy field). The results are shown to fit satisfactorily the experimental observations for  $MnF_2$  and  $FeF_2$ . "The author thanks V. M. Tsukernik, V. N. Genkin and V. M. Fayn for valuable discussions." Orig. art. has: 33 formulas.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet im. N. I. Lobachevskogo (Gor'kiy State University)

SUBMITTED: 29Feb64

ENCL: 00

SUB CODE: EM, SS

NR REF SOV: 006

OTHER: 006

Cord 2/2

GENKIN, G.M.

High-frequency nonresonance absorption by an antiferromagnetic.  
Fiz. tver. tela 6 no.9:2618-2625 S '64.

(MIRA 17:11)

1. Gor'kovskiy gosudarstvennyy universitet imeni Lobachevskogo.

L 18243-65 EWT(1) IJP(c)/AS(mp)-2/RAEM(a)/AFWL/SSD/ASD(a)-5/ESD(dp)/  
ESD(ga)/ESD(t)

ACCESSION NR: AP5000667

S/0181/64/006/012/3662/3667

AUTHORS: Genkin, G. M.; Golubeva, N. G.

TITLE: Spin-spin line width of exchange resonance 2)

SOURCE: Fizika tverdogo tela, v. 6, no. 12, 1964, 3662-3667

TOPIC TAGS: spin wave, spin spin interaction, line width, exchange resonance, ferrite, uniaxial crystal, antiferromagnetism, ferri-magnetism

ABSTRACT: The spin-spin line width is defined as the width of the exchange-resonance line of a ferrimagnet due to the interaction between the homogeneous precession and the spin waves. The ferrite is assumed to be a uniaxial crystal consisting of two non-equivalent magnetic sublattices. The relaxation of the homogeneous precession of the magnetization is analyzed in a manner analogous to that used for an antiferromagnet by V. N. Genkin and V. M. Fayn (ZhETF, v. 41,

Card 1/3

L 18243-65

ACCESSION NR: AP5000667

1522, 1961), and the line width in the ferrimagnet is found to be larger than for the antiferromagnet because of the large population of magnons of the ferromagnetic branch in the ferrimagnet. As a result, the temperature dependence of the line width is also different for the ferrite and antiferromagnet in the low temperature region ( $kT < \hbar\omega_0$ ,  $\omega_0$  -- frequency of exchange resonance). The relaxation time is calculated by using a scheme with probabilities per unit time. A formula is also obtained for the line width of antiferromagnetic resonance, which differs somewhat from the results of V. M. Genkin and V. M. Fayn because of an error in integration made by the latter. An estimate for SmIG yields a line width of approximately  $5 \times 10^8$  rad/sec at  $T = 4K$ , and for  $MnF_2$   $1.45 \times 10^{12}$  rad/sec. "In conclusion the authors thank V. M. Fayn and V. N. Genkin for very useful discussions." Orig. art. has: 19 formulas. 2

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete im. N. I. Lobachevskogo

Cord 2/3



L 18243-65

ACCESSION NR: AP5000667

(Scientific Research Radiophysics Institute at the Gor'kiy State  
University)

SUBMITTED: 13May64

ENCL: 00

SUB CODE: SS, EM

NR REF SOV: 001

OTHER: 008

Card 3/3

GENKIN, G.M.

High-frequency nonresonance absorption in ferromagnets. Fiz. tver.  
tela 7 no.3:846-851 Mr '65. (MIRA 18:4)

1. Gor'kovskiy gosudarstvennyy universitet.

L 51404-65 EWT(1)/EPF(c)/EEG(t) Pi-4 IJP(c) WW/GG

ACCESSION NR: AP5010700

UR/0181/65/007/004/0989/0994

AUTHOR: Genkin, G. M.; Golubeva, N. G.

TITLE: Concerning the spin-phonon line width of exchange resonance

SOURCE: Fizika tverdogo tela, v. 7, no. 4, 1965, 989-994

TOPIC TAGS: ferromagnetism, ferrimagnetism, precession relaxation, magnetization relaxation, spin phonon interaction, line width, exchange resonance

ABSTRACT: The article deals with the contribution made to the width of exchange resonance line in a ferrimagnet by spin-phonon interaction. The spin-phonon line width of the exchange resonance is found to be larger than in the case of an anti-ferromagnet, owing to the part played by the relaxation processes by magnons on the low-frequency paramagnetic branch. To this end, a calculation is made of the relaxation of uniform precession of magnetization of uniaxial ferrimagnet occurring in exchange resonance as a result of interaction between the spin waves and the phonons. The contribution of the spin-phonon and the spin-spin interactions to the line width are estimated and it is shown that the ratio of these contributions

Card 1/2

L 51404-65

ACCESSION NR: AP5010700

in a ferrimagnet has a weak dependence on the temperature, because the main contribution to the spin-spin component of the line width is made by magnons of the ferromagnetic branch, whose populations are sufficiently large. Numerical estimates show that for yttrium iron garnet the spin-phonon line width at 5K due to interaction with acoustic phonons, is approximately  $6 \times 10^8$  rad/sec, whereas the experimentally measured line width is  $3 \times 10^{11}$  rad/sec. "We thank V. M. FAYN for valuable discussions." Orig. art. has: 25 formulas.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet im. N. I. Lobachevskogo  
(Gor'kiy State University)

SUBMITTED: 10Aug64

ENCL: 00

SUB CODE: SS

NR REF SOV: 003

OTHER: 005

Card 2/2

I 49043-65 EPA(s) 7-7(1) Pt-7 13P(c) 36

ACCESSION NR: AP5006895

S/0181/65/007/003/0846/0851

AUTHOR: Genkin, G. M.

TITLE: Considering high-frequency nonresonant absorption by ferrimagnets

SOURCE: Fizika tverdogo tela, v. 7, no. 5, 1965, 846-851

TOPIC TAGS: ferrimagnetism, antiferromagnetism, nonresonant absorption, transverse susceptibility, exchange resonance

ABSTRACT: The author analyzes the imaginary part of the low-temperature transverse susceptibility of a ferrimagnet at frequencies above the frequency of the exchange resonance of the ferrimagnet. At such frequencies the alternating magnetic field of incident wave excites in the ferrimagnet coupled oscillations of both magnetic sublattices, so that it becomes necessary to consider processes in which the homogeneous precession of the exchange resonance in the ferrimagnet participates. The results show that nonresonant absorption decreases very slowly (logarithmically) with increasing frequency whereas the resonant susceptibility decreases rapidly (quadratically in the case of a Lorentz line shape) with increasing frequency. The results hold over a wide range of frequencies if the spins of the ferrimagnet are close in magnitude. High-frequency nonresonant absorption by an

Card 1/2

L 49043-65

ACCESSION NR: AP5006893

antiferromagnet at frequencies above antiferromagnetic resonance was considered by the author earlier (FTT v. 6, 2618, 1964). The behavior of the nonresonant absorption for the ferrimagnet is similar to the nonresonant absorption in the antiferromagnet, but the frequency region in which the imaginary part of the susceptibility increases with frequency is much larger than for the ferrimagnet. By way of an estimate it is shown that for an ytterbium iron garnet (YbIG) the imaginary susceptibility at 4K is  $\sim 10^{-4}$ . Orig. art. has: 18 formulas.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet (Gor'kiy State University)

SUBMITTED: 18Jul64

ENCL: 00

SUB CODE: EM, SS

NR RIF SOV: 005

OTHER: 006

Card 2/2 CC

L 12778-66 EWT(1)/EWP(e)/EWT(m) AT/WH

ACC NR: AP5026604 SOURCE CODE: UR/0056/65/049/004/1118/1125

AUTHORS: Genkin, G. M.; Fayn, V. M.

ORG: Radiophysics Institute of the Gor'kiy State University  
(Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta)

TITLE: Contribution of the anharmonic character of crystal lattice oscillations to the nonlinear properties of a crystal

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 4, 1965, 1118-1125

TOPIC TAGS: crystal lattice structure, nonlinear effect, crystal lattice vibration, Green function, dielectric susceptibility

ABSTRACT: The authors analyze the nonlinear properties of a crystal, brought about by oscillation of the ion lattice, and evaluate the contribution made to the third-rank cross susceptibility tensor by these lattice oscillations. The expression for the cross susceptibility tensor is derived by means of the technique of three-time temperature Green's functions. The effect of ion motion on the symmetry of the tensor with respect to its first two indices is considered and it is shown that such symmetry is obtained in a certain approximation. The

Card 1/2

L 12778-66

ACC NR: AP5026604

7  
analytical results are used to estimate the characteristics of KDP crystals at frequencies employed in ruby laser operation. Authors thank Professor V. L. Ginzburg for discussions and E. G. Yashchin for useful remarks. Orig. art. has: 32 formulas 77.55

SUB CODE: 20/ SUBM DATE: 20Feb65/ NR REF SOV: 006/ OTH REF: 009

Card

2/2

HW



L 25934-66 EWT(1)/EWT(m)/T/EWP(t) IJP(c) JD/GG

ACC NR: AP6016665

SOURCE CODE: UR/0056/65/049/004/1118/1125

AUTHOR: Genkin, G. M.; Fayn, V. M. --

ORG: Radiophysics Institute, Gor'kiy State University (Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta)

TITLE: Contribution of anharmonicity of crystal lattice oscillations to the nonlinear properties of a crystal

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 4, 1965, 1118-1125

TOPIC TAGS: crystal lattice vibration, crystal property, second order phase transition, approximation, electromagnetic field

ABSTRACT: In conjunction with the appearance of highly monochromatic, high intensity, laser-produced electromagnetic fields, numerous researchers have begun investigating the nonlinear properties of crystals (see, e.g., V.M. FAYN, E.G. YASHCHIN, ZhETF /Journal of Experimental and Theoretical Physics/, 46, 695, 1964; J.F. WARD, P.A. FRANKEN, Phys. Rev., 133, A183, 1964; R.C. MILLER, D.A. KLEINMAN, A. SAVAGE, Phys. Rev. Lett., 11, 146, 1963). The present article investigates the nonlinear properties of a crystal caused by the oscillations of the ionic lattice. An expression for a third-order cross-susceptibility tensor is obtained using Green's triple-time temperature function. The cross-susceptibi-

Card 1/2

L 25934-66

ACC NR:

AP6016665

2

lity tensor  $\chi_{ab0}(\omega, \omega)$  in the approximation used turns out to be symmetric in a and b. The future continuation of this investigation will study the behavior of the nonlinear characteristics of a crystal near second-order phase transition points. Since the expressions for the cross-susceptibility obtained do not seem to have singularities during the approach toward zero of any of the crystal's eigenfrequencies, it is difficult to predict what will happen near such phase transition points. The authors thank Professor V. L. Ginzburg for the discussions of the questions pertaining to this work and E. G. Yashchin for his helpful criticism. Orig. art. has: 32 formulas. [JPRS]

SUB CODE: 20 / SUBM DATE: 20Feb65 / ORIG REF: 007 / OTH REF: 008

Card 2/2 FW

ACC NR: AP6036977

SOURCE CODE: UR/0181/66/008/011/3310/3319

AUTHOR: Genkin, G. M. ; Fayn, V. M. ; Yashchin, E. G.

ORG: Gor'kiy State University imeni N. I. Lobachevskiy (Gor'kovskiy gosudarstvennyy universitet)

TITLE: Nonlinear properties of a crystal lattice

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3310-3319

TOPIC TAGS: <sup>igroni</sup> crystal, crystal lattice, ~~anharmonic~~ crystal ~~lattice~~ lattice vibration, Green function, cross susceptibility tensor, laser, ~~anharmonic lattice~~ vibration, Raman effect <sub>nonlinear</sub>

ABSTRACT: An analysis is made of the nonlinear properties of an ion crystal induced by vibrations in the lattice. Using Green's multi-temporal temperature functions, an expression is obtained for the fourth-rank cross-susceptibility tensor as a function of third and fourth-order anharmonicity in lattice vibrations. Two-quantum, and particularly Raman processes, and the parametric interaction of four waves, are investigated. The contribution of the effects of spatial dispersion

Cord 1/2

ACC NR: AP6036977

in a harmonic medium to the third-rank cross-susceptibility tensor is examined.  
Evaluations are made of tensor magnitudes. [Based on authors' abstract]

[SP]

SUB CODE: 20/SUBM DATE: 16Oct65/ORIG REF: 007/OTH REF: 002/

Card 2/2

ACC NR: AP/005371

SOURCE CODE: UR/0131/66/003/012/3662/3663

AUTHOR: Genkin, V. M.; Genkin, G. M.; Fayn, V. M.

ORG: Gor'kiy State University im. N. I. Lobachevskiy (Gor'kovskiy gosudarstvennyy universitet)

TITLE: Contribution to the theory of nonlinear properties of ferromagnets

SOURCE: Fizika tverdogo tela, v. 8, no. 12, 1966, 3662-3663

TOPIC TAGS: ferromagnetic material, nonlinear effect, adiabatic approximation, ferromagnetic resonance, magnetic susceptibility, spin orbit coupling

ABSTRACT: The authors consider a different type of nonlinear effects of ferromagnets, which can be described by expanding the polarization and the magnetization in powers of the products of the electric and magnetic fields. This is called nonlinearity of the mixed type, to distinguish it from the nonlinearities of the electric and magnetic type which have been discussed in the literature before. The analysis is carried out in the adiabatic approximation under the assumption that the frequency of the ferromagnetic resonance and the frequencies of the external fields are much lower than the characteristic frequency of the electron motion. This makes it possible to determine the Hamiltonian of the crystal as a function of the external electric and magnetic fields, and to use the coefficients of this Hamiltonian to determine the spin orbit interaction. This in turn makes it possible to determine the coefficients in the expansions for the polarization and for the magnetization. The elements of the sus-

Card 1/2

ACC NR: AP7005871

ceptibility tensor, which enters in these expressions, are estimated. Orig. art. has:  
3 formulas.

SUB CODE: 20/ SUBM DATE: 21Jun66/ ORIG REF: 003/ OTH REF: 002

Card 2/2

GENKIN, G.Ya., inzh.

Mechanizing the manufacture of furniture. Der. prom. 8 no.7:21  
Jl '59. (MIRA 12:9)

1. Leningradskaya mebel'naya fabrika No.3.  
(Furniture industry)

GENKIN, I.; GRIGOR'YEVA, V.

Conference on the economic effectiveness of oil and gas prospecting.  
Geol. nefti i gaza 6 no.7:54-56 JI '62. (MIRA 15:6)  
(Petroleum geology) (Gas, Natural--Geology)



GENKIN, I.A.; ROSSOKHATSKIY, A.L.

Repairing antifriction bearings. Mashinostroitel'  
no.9:18-19 S '65. (MIRA 18:12)

GENKIN, Israil' Borisovich; ALEKSANDROV, Marks Aleksandrovich; KOVALEVA, A.A.,  
vedushchiy red.; POLOSINA, A.C., tekhn. red.

[Economics and organization of large subassembly construction of  
drilling stations] Ekonomika i organizatsiia krupnoblochnogo sooru-  
zheniia burovykh. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-  
toplivnoi lit-ry, 1958. 135 p. (MIRA 11:7)  
(Petroleum engineering--Equipment and supplies)

GENKIN, I.B.

Economic effectiveness of hydraulic fracturing. Neft. khoz.  
38 no.9:21-23 S '60. (MIRA 13:9)  
(Oil wells--Hydraulic fracturing)

GENKIN, I.B., red.; SULTANOVA, R.T., red. izd-va; ZAYNULLINA, G.Z., tekhn.  
red.

[Labor productivity in the oil-field industry of Bashkiria] Vopro-  
sy proizvoditel'nosti truda v nefte dobyvayushchei promyshlennosti  
Bashkirii; sbornik statei. Ufa, Bashkirskoe knizhnoe izd-vo, 1961.  
121 p. (MIRA 14:6)  
(Bashkiria--Petroleum industry--Labor productivity)

PERMYAKOV, Il'ya Grigor'yevich; SATTAROV, Maksim Murtazovich; GENKIN,  
Izrail' Borisovich. Prinimal uchastiye PANOVA, R.K.; SAVINA,  
Z.A., ved. red.; POLOSINA, A.S., tekhn. red.

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[Economic efficiency of capital investments in petroleum  
production] Ekonomicheskaya effektivnost' kapital'nykh  
vlozhenii v neftedobyvayushchei promyshlennosti. Pod red.  
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[Potentials for increasing labor productivity in the  
petroleum industry] Rezervy rosta proizvoditel'nosti  
truda v neftedobyvayushchei promyshlennosti. Moskva,  
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GENKIN, I.I.

USSR/Engineering - Conferences

Card 1/1 Pub. 124 - 19/26

Authors : Genkin, I. I., Cand. of Tech. Sc.

Title : The theory and construction of piston engines

Periodical : Vest. AN SSSR 10, 90-91, Oct 1954

Abstract : Minutes are presented of the meetings held by the Engine Laboratory of the Academy of Sciences USSR during June 3-5, 1954. The theory and construction of piston engines were the main topics of the discussions. The resolutions adopted by the meeting are stated.

Institution : .....

Submitted : .....

GENKIN, I.L.

Review of the sources luminiscence of diffuse gaseous nebulae.  
Astron.zhur. 33 no.6:817-834 N-D '56. (MIRA 10:1)

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(Nebulae) (Stars--Radiation)

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~~Metagalactic density gradient. Trudy Inst. fiz. i geofiz. AN Turk.~~  
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23(5), 3(6)

SOV/165-59-6-2/5-15

AUTHORS: Genkin, I.L., Nepesov, K.

TITLE: Study of the Glow of the Night Sky<sup>✓</sup> and <sup>✓</sup>Aurora Borealis Over Ashkhabad During the International Geophysical Year

PERIODICAL: Izvestiya Akademii nauk Turkmenskoy SSR, 1959, Nr 6, pp 13-18

ABSTRACT: The authors describe a series of observations and spectrographical registrations carried out during the International Geophysical Year by the Astrofotometrisheskaya laboratoriya Instituta fiziki i geofiziki Akademii nauk Turkmenskoy SSR (Astrophotometric Laboratory of the Institute for Physics and Geophysics of the AS Turkmenskaya SSR). As the aurora borealis is an extremely rare occurrence at Ashkhabad it is important that none of it should be missed. The majority of photos, however, show no trace of northern lights. The spectra were photographed by a "SP-48"-type spectrograph with a 1 : 0.8 camera. The photographing was carried out until October 1958, "DN" and "DK" films were used, which were developed by "Agfa-12" standard sensitometric developer Nr 2. The measuring of the neon lines photographed through the seven-stage reducer of microphotometer "MF-2" was extremely difficult because of the small stages. Characteristics of the spectral neon lines  $\lambda \lambda$  5401 and 6296 Å are shown on

Card 1/2

